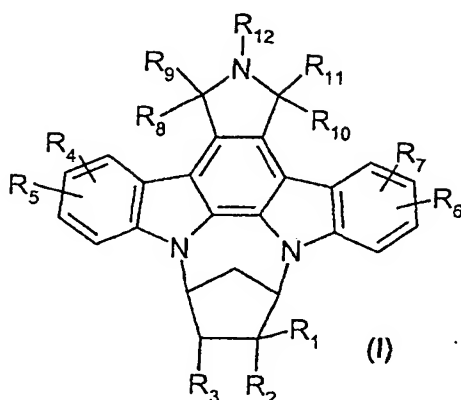


NAD AG
Our Ref.: 259-9

Claims

1. A compound of the general formula (I)



including diastereomeric and enantiomeric forms, mixtures of diastereomeric and enantiomeric forms, or pharmaceutically acceptable salt forms,

wherein

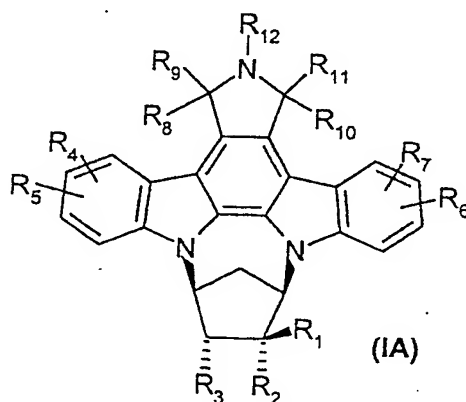
- R_1 is $NR_{13}R_{14}$ or may join together with R_2 to form an optionally substituted saturated or unsaturated N-heterocycle (e.g. spiro-hydantoyl) or may join together with R_3 to form an optionally substituted saturated or unsaturated N-heterocycle (e.g. oxazolin-2-one-4,5-diyl);
- R_2 is selected from the group consisting of H, lower alkyl, aryl, heteroaryl, CN, COR_{13} , $COOR_{13}$, $CONHR_{13}$, and $CONR_{13}R_{14}$;
- R_3 is selected from the group consisting of H, OR_{13} , $OCOR_{13}$, $OCONHR_{13}$, and $OCONR_{13}R_{14}$;
- R_4, R_5, R_6, R_7 taken alone can be the same or different and are each independently selected from the group consisting of H, halogen, lower alkyl, lower alkenyl, lower alkynyl, aryl or heteroaryl, CN, COR_{13} , $COOR_{13}$, $CONHR_{13}$, $CONR_{13}R_{14}$, CSR_{13} , $CSSR_{13}$, $NR_{13}R_{14}$, $NHCOR_{13}$, $NHCOOR_{13}$, $NHSO_2R_{13}$, N_3 , OR_{13} , $OCOR_{13}$, SR_{13} , SO_2R_{13} , and $SiR_{15}R_{16}R_{17}$; wherein R_{15} , R_{16} and R_{17} can be the same or different and are independently selected from the group consisting of H, lower alkyl, aryl and heteroaryl;
- R_8, R_9 when taken alone they are both H, or one of them is H and the other is OH, or when taken together they are the oxygen atom of a carbonyl group or the sulfur atom of a thiocarbonyl group; and with the proviso that when R_{10}, R_{11} are different from carbonyl R_8, R_9 taken together are the oxygen atom of a carbonyl group or the sulfur atom of a thiocarbonyl group;
- R_{10}, R_{11} when taken alone they are both H, or one of them is H and the other is OH, or when taken together they are the oxygen atom of a carbonyl group or the sulfur atom of a thiocarbonyl group; and with the proviso that when R_8, R_9 are different

from carbonyl R_{10}, R_{11} taken together are the oxygen atom of a carbonyl group or the sulfur atom of a thiocarbonyl group;
 R_{12} is selected from the group consisting of H, lower alkyl, cycloalkyl, substituted benzyl, aryl, heteroaryl, COR_{13} , $COOR_{13}$, $NR_{13}R_{14}$, and OR_{13} ,

and wherein

R_{13} and R_{14} can be the same or different and are independently selected from the group consisting of H, lower alkyl, cycloalkyl, optionally substituted acyl, aryl, optionally substituted benzyl and heteroaryl rest; or may join together to form N_3 or an optionally saturated or unsaturated N-heterocycle (e.g. morpholino, optionally substituted triazolyl, optionally substituted tetrazolyl, piperidinyl).

2. A compound according to claim 1 of the general formula (IA)



including diastereomeric and enantiomeric forms, mixtures of diastereomeric and enantiomeric forms, or pharmaceutically acceptable salt forms,

wherein R_1 to R_{12} are as defined in claim 1.

3. A compound according to claim 1 or 2 including diastereomeric and enantiomeric forms, mixtures of diastereomeric and enantiomeric forms, or pharmaceutically acceptable salt forms, wherein

R_1 is $NR_{13}R_{14}$;

R_2 is selected from the group consisting of H, CN, $COOR_{13}$, $CONHR_{13}$, and $CONR_{13}R_{14}$;

R_3 is selected from the group consisting of H and OH;

R_4, R_5, R_6, R_7 taken alone can be the same or different and are each independently selected from the group consisting of H, $CONHR_{13}$, $CONR_{13}R_{14}$, $NR_{13}R_{14}$, $NHCOR_{13}$, $NHCOOR_{13}$, $NHSO_2R_{13}$, and OR_{13} ;

R_8, R_9 are both H, or one of them is H and the other is OH, or taken together they are the oxygen atom of a carbonyl group; and with the proviso that when R_{10}, R_{11} are different from carbonyl R_8, R_9 taken together are the oxygen atom of a carbonyl group;

R_{10}, R_{11} are both H, or one of them is H and the other is OH, or taken together they are the oxygen atom of a carbonyl group; and with the proviso that when R_8, R_9 are

different from carbonyl R_{10}, R_{11} taken together are the oxygen atom of a carbonyl group;
 R_{12} is selected from the group consisting of H, substituted lower alkyl, $NR_{13}R_{14}$, and OR_{13} ,

and wherein

R_{13} and R_{14} can be the same or different and are independently selected from the group consisting of H and substituted lower alkyl.

4. A compound according to any one of claims 1 to 3 including diastereomeric and enantiomeric forms, mixtures of diastereomeric and enantiomeric forms, or pharmaceutically acceptable salt forms, wherein

R_1 is NHR_{13} , wherein R_{13} is selected from the group consisting of H and substituted lower alkyl;

R_2 is selected from the group consisting of CN, $COOR_{13}$, and $CONHR_{13}$, wherein R_{13} is selected from the group consisting of H and substituted lower alkyl;

R_3 is selected from the group consisting of H and OH;

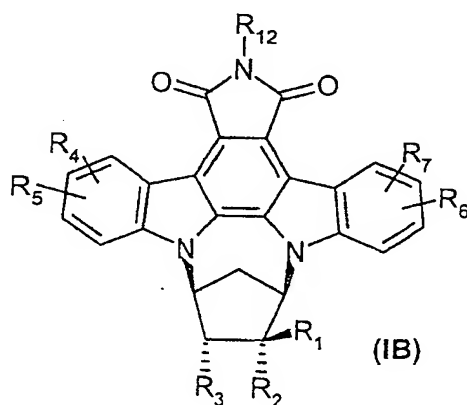
R_4, R_5, R_6, R_7 taken alone can be the same or different and are each independently selected from the group consisting of H, NHR_{13} , and OR_{13} , wherein R_{13} is selected from the group consisting of H and substituted lower alkyl;

R_8, R_9 are both H, or taken together they are the oxygen atom of a carbonyl group; with the proviso that when R_{10}, R_{11} are different from carbonyl R_8, R_9 taken together are the oxygen atom of a carbonyl group;

R_{10}, R_{11} are both H, or taken together they are the oxygen atom of a carbonyl group; with the proviso that when R_8, R_9 are different from carbonyl R_{10}, R_{11} taken together are the oxygen atom of a carbonyl group;

R_{12} is H.

5. A compound according to any one of claims 1 to 4 of the general formula (IB)



including diastereomeric and enantiomeric forms, mixtures of diastereomeric and enantiomeric forms, or pharmaceutically acceptable salt forms,

wherein R_1 to R_7 and R_{12} are as defined in any one of claims 1 to 4.

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6. A compound according to any one of claims 1 to 5, wherein R_4, R_5, R_6, R_7 are all H.

7. Use of a compound according to any one of claims 1 to 6 for inhibiting the activity of one or more protein kinases.

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8. The use according to claim 7, wherein the one or more protein kinases are selected from the group consisting of extracellular signal regulated kinase 2, protein kinase A, protein kinase C, and glycogen synthase kinase 3 β .

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9. A medicament comprising a compound according to any one of claims 1 to 6.

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10. Use of a compound according to any one of claims 1 to 6 for treating non-insulin dependent diabetes mellitus, acute stroke and other neurotraumatic injuries, for treating diabetes mellitus, as a chemotherapeutic for the treatment of various malignant diseases, for treating diseases caused by malfunctioning of specific signaling pathways, and for treating neurodegenerative diseases such as for example Alzheimer's disease.